ALBERTA WATER COUNCIL

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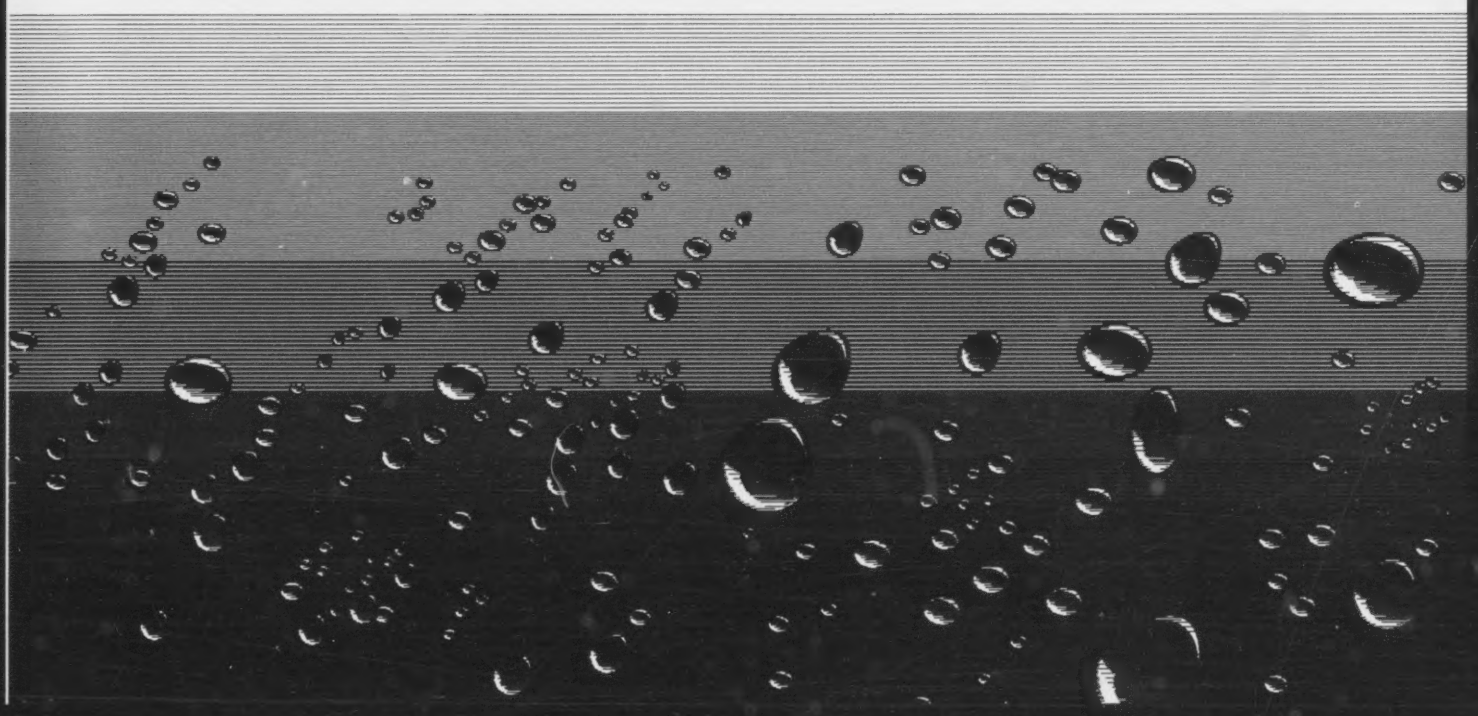
Review of Implementation Progress of *Water for Life*, 2006 – 2008



About the Alberta Water Council

The Alberta Water Council is a multi-stakeholder partnership with Members from governments, industry, and non-government organizations. All Members have a vested interest in water. The Alberta Water Council is one of three types of partnerships established under the *Water for Life* strategy; the others are Watershed Planning and Advisory Councils and Watershed Stewardship Groups.

The Alberta Water Council regularly reviews implementation progress of the *Water for Life* strategy and champions the achievement of the strategy's goals. It also advises the Alberta Government, stakeholders, and the public on effective water management practices and solutions to water issues, as well as on priorities for water research. Where there is consensus, the Council may advise on government policy and legislation. However, the Government of Alberta remains accountable for the implementation of the *Water for Life* strategy and continues to administer water and watershed management activities throughout the province.

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Contents

Executive Summary and Recommendations 2

1. Background 8
2. Introduction 10
3. General Assessment and Recommendations 11
4. Drinking Water 17
5. Healthy Aquatic Ecosystems 21
6. Reliable, Quality Water Supplies 24
7. Knowledge and Research 28
8. Partnerships 30
9. Water Conservation 34
10. Conclusion 37

Appendix A. Committee Members 38

Appendix B. Challenges 39

Appendix C. Recommendations 40

Appendix D. Renewed *Water for Life* Outcomes 41

Executive Summary and Recommendations

One of the most important roles of the Alberta Water Council is to regularly review the implementation progress and effectiveness of the provincial government's water management strategy, *Water for Life*. This report is the Council's third review since the release of the strategy in 2003 and covers implementation progress until the end of the year 2008. This past year was a milestone for the strategy, which passed the halfway point of its original implementation timeframe and marked the renewal of the strategy, where the Government of Alberta reaffirmed their commitment to the *Water for Life* approach to managing water resources in Alberta. The specific outcomes identified in the renewed strategy reaffirm that the next stage of *Water for Life*'s implementation will require a shift from planning to action.

In the five years since its inception, noticeable progress has been made in the implementation of the strategy, however much of the work has involved gathering information, building partnerships and developing plans with agreed-upon goals, outcomes and actions. Overall, this type of information-gathering and planning work must begin to shift toward physical, on-the-ground improvements in water management so the strategy can continue to advance. The Alberta Water Council continues to support the effective implementation of the *Water for Life* strategy and provides this review and recommendations in the spirit of adaptive management, where regular reviews allow strengths and challenges to be identified and improvements to be made.

General Assessment

Four of the six strategic elements are on schedule and progress is underway in the two which have fallen behind. As with any large undertaking, some areas are progressing more quickly, while others are running into unforeseen challenges and obstacles. This is not unexpected given the ambitious scope of the strategy. It is hoped that by re-focusing *Water for Life* toward those actions identified in this review that the goal of healthy aquatic ecosystems and the key direction of conservation will catch up in their implementation. New areas of focus are suggested for each element, regardless of its implementation progress, to ensure *Water for Life* remains relevant and focused on current management issues.

In reviewing the overall trends in implementing the strategy, three challenges that cross-cut through all goals and key directions of the *Water for Life* strategy were identified. Addressing them will require superior coordination between Government of Alberta departments,

industry, the environmental community and many others. In highlighting these areas, it is hoped that all partners will be more aware of them and take steps to address them.

Challenge 1: Land, water, air, biodiversity, and the cumulative impacts of development must be managed in an integrated and coordinated manner.

Challenge 2: *Water for Life* partnerships require many types of resources: staff, technical support, data and information, communication, volunteers, and funding. The need for resources is increasing as the strategy progresses. Resources must be available to partnerships to ensure the necessary implementation actions do not outstrip stakeholder and partnership capacity to complete them.

Challenge 3: *Water for Life* requires leaders and champions within the Government of Alberta, industry, the environmental community, other levels of government, and within all of its partnerships for successful implementation.

Two areas that affect all three goals of the strategy were identified as areas for increased focus. These two areas are (1) Communication and Education, and (2) Source Water Protection. An increased focus on communication and education has the ability to instill a conservation ethic in all Albertans, and improving source water protection will likely help improve provincial water quality. Improving water quality improves aquatic ecosystem health, supports a multi-barrier approach to drinking water safety and directly affects the availability of reliable, quality water supplies for sustainable economic development. The Alberta Water Council's specific recommendations are:

Recommendation 1: Review the effectiveness of the Government of Alberta's current water education programs, identify any gaps and opportunities for collaboration and take action.

Recommendation 2: Address source water protection through watershed and regional planning and integrate with emerging and existing regulatory tools.

Recommendation 3: Develop a source water protection framework to address the effects of non-point source pollution on provincial water quality.

Safe, Secure Drinking Water

This goal of the *Water for Life* strategy was relatively robust and mature prior to the release of the original *Water for Life* strategy and, to date, excellent progress has continued. Most short-term actions have been completed, and most medium and long-term actions are well underway. Two important accomplishments since the completion of the Council's previous review report include the implementation of improved emergency protocols and new grant criteria that support the development of regional municipal wastewater and drinking water systems. Two recommended areas of focus from the Council to support the on-going implementation of this element are:

> **Recommendation 4:** Review, enhance and expand existing education and outreach programs for those operating private drinking water systems. Every private drinking water system operator in Alberta should be made aware of available information and how they can access it.
>
> **Recommendation 5:** Review the standards for small public drinking water systems and enhance their accompanying support and monitoring programs.

Healthy Aquatic Ecosystems

The implementation of this goal remains behind schedule. Efforts are currently focused on (1) acquiring an objective, scientific understanding of aquatic ecosystems, (2) assessing their current status across Alberta, and (3) identifying the actions that are required to maintain or improve their health. This work has a large scope and requires substantial technical and scientific support and thus has been slow to progress. Additionally, the lack of a provincial wetland policy remains a gap, although the Alberta Water Council has recently provided detailed advice regarding a new policy to the provincial government. A new policy and implementation plan is expected from the provincial government in 2009 to fill this void. Despite the outstanding data and information gaps under this goal, enough is known about Alberta's aquatic ecosystems to begin the implementation of some key actions. These actions need to be clearly prioritized so true 'muscle' can be put behind advancing those that are priorities; therefore, the Alberta Water Council recommends that the Government of Alberta:

> **Recommendation 6:** Develop a provincial healthy aquatic ecosystems implementation plan, utilizing the findings of the Alberta Water Council's Healthy Aquatic Ecosystems Project Team, including clear and timely objectives.

Reliable, Quality Water Supplies for a Sustainable Economy

This goal of the *Water for Life* strategy is intended to help Albertans understand and manage their water supplies to support sustainable economic development, with the understanding that water within each basin is a finite resource. The actions currently underway to advance this element are on schedule and have significant momentum, however a more balanced, holistic approach to water storage issues is necessary. The Alberta Water Council recognizes that a critical challenge for this goal will be moving beyond current water management methods and policies towards a broad range of new and innovative tools for managing water supply and demand. Therefore, recommended areas of focus for advancing this goal include:

Recommendation 7: Develop and implement an enhanced water allocation transfer system.

Recommendation 8: Continue, but broaden, the examination of innovative water storage solutions. This work should include an examination of ecosystem-based water storage solutions.

Knowledge and Research

Good information is the basis of good management. The establishment of the Alberta Water Research Institute was a very important step forward in advancing this key direction, and is now beginning to produce significant results. New research is underway in several areas to support the *Water for Life* strategy as a result of the Alberta Water Research Institute's efforts. Overall, the implementation of this key direction is on schedule; however, there is a need for greater coordination in capturing and communicating water research to those who are "on-the-ground" in order for new research and information to have an effect on local watershed management. The completion of this action would facilitate the application of research within Alberta by non-technical audiences and enable informed management decisions. Translating research into useable knowledge and applying research on a watershed basis is a critical step when building a strong foundation for locally-based watershed management.

Recommendation 9: Develop mechanisms to coordinate and communicate data, knowledge, and research. Efforts should be made to connect partners and to coordinate among similar research initiatives.

Partnerships

Partnerships continue to be one of the cornerstones of the *Water for Life* strategy. They are involved in nearly all aspects of watershed management; they are the planners, goal-setters and the individuals of whom they are comprised are often the final implementers of plans and actions. Partnerships are absolutely vital for engaging Albertans in water management at all levels. Strong volunteer support has been the key to the success of *Water for Life* and the dedication and motivation of these many individuals, numbering well over 1000, has been inspirational. Progress is well underway to complete many of the actions identified under this key direction, however as stated earlier, areas of concern include partnership capacity, leadership, and integration with other multi-stakeholder initiatives. The work expected of WPACs will grow as the strategy moves toward implementation and resources must be in place to support them. Specific actions being recommended to advance this key direction include:

Recommendation 10: Develop a communications plan outlining the key processes and tools that will enable effective and efficient communication and coordination among *Water for Life* partners including Watershed Planning and Advisory Councils, Watershed Stewardship Groups, the Alberta Water Council, the Government of Alberta and the public.

Recommendation 11: Ensure the long-term sustainability of *Water for Life* partnerships.

Water Conservation

Work to advance this key direction of the *Water for Life* strategy has largely focused on identifying and filling critical information gaps. Progress has been made in exploring the use of economic incentives to improve the wise use of water, but is behind schedule. Since the last review report, the online water use reporting system was upgraded to accept information related to groundwater and the Alberta Water Council released a framework for the completion of Water Conservation, Efficiency, and Productivity Plans, which seven major water-using sectors agreed to complete. Overall, advancements toward the goal of a 30% improvement in water conservation, efficiency and productivity is behind schedule, but progress is being made. A need to increase the speed of implementation has been identified, as well as two specific recommendations:

Recommendation 12: Implement mandatory water use reporting to better understand actual water use by all water-licence holders.

Recommendation 13: In order to ensure all stakeholders have input to, and support the implementation of, new tools to advance water conservation, efficiency, and productivity, the provincial government should work with the Alberta Water Council to complete the examination of economic instruments.

Conclusion

Common themes at this point in time are centred on how land-use planning and water management will become effectively linked. This uncertainty has affected many areas of the strategy's implementation. It is important at this time that stakeholders continue to value and support the implementation of *Water for Life*. The overarching policy umbrella it provides is a valuable and important tool for water management in Alberta, and will become more so as the strategy's implementation proceeds and becomes increasingly complex.

1. Background

Water for Life: Alberta's Strategy for Sustainability was released in 2003 as an evolving and comprehensive long-term plan for the management of Alberta's water resources. The strategy is designed to achieve three interrelated goals:

- **Safe**, secure drinking water supplies,
- **Healthy** aquatic ecosystems, and
- **Reliable**, quality water supplies for a sustainable economy.

In order to achieve these three goals, the strategy sets out a number of actions that must be completed over short-, medium-, and long-term timeframes. These actions are organized into three key directions:

- **Knowledge and Research** — Albertans will have access to the knowledge needed to achieve safe secure drinking water; healthy aquatic ecosystems; and reliable, quality water supplies for a sustainable economy.
- **Partnerships** — Most solutions to water issues will arise from the effective management of individual watersheds. Partners are empowered, informed and fully engaged in watershed stewardship.
- **Water Conservation** — All sectors understand how their behaviours impact water quality, quantity and the health of aquatic ecosystems and adopt a "water conservation ethic."

The release of the *Water for Life* strategy marked a new approach to water management in Alberta. Since that release, the Alberta Water Council has completed two reviews of the strategy's implementation progress. The first review was completed in October 2005 and provided Albertans with information on the purpose and scope of *Water for Life* and commented on its initial implementation progress. The report reaffirmed the interdependence of the three goals and three key directions of *Water for Life* and commended a strong start in its first year of implementation.

The second report was released in April 2007 and marked the end of the short-term timelines established under the original *Water for Life* strategy. The report provided a review of the progress toward each goal and key direction and identified opportunities to advance each element. It recognized the continued momentum of the *Water for Life* strategy and noted that some timeline lapses were inevitable due to the ambitious nature of the strategy. It also

observed that progress among the elements was uneven, but that this was not unexpected given the complexity of the actions identified in the strategy. Overall, the review recognized that the actions of the first three years had established a solid foundation for future work and called for the continued investment of resources and commitment to the implementation of *Water for Life*.

In 2006, Premier Ed Stelmach mandated the Minister of the Environment to renew and resource the *Water for Life* strategy. In turn, the Minister invited the Alberta Water Council to provide recommendations to re-energize and re-focus *Water for Life*. After extensive input from stakeholders, in January 2007, the Alberta Water Council released their report, *Water for Life: Recommendations for Renewal*, to the Minister and the public. The report affirmed that the three goals and three key directions of the original *Water for Life* strategy remained valid and that efforts should be continued to implement the strategy. It explained that due to the interrelatedness of the goals and key directions of *Water for Life*, an increased focus on two key areas would help to advance the implementation of the strategy as a whole:

- **Safeguard Our Water Sources** — Outlines the need for increased efforts to address aquatic ecosystem degradation and improve the integration of land and water management. The need for new tools to address this gap is also emphasized.
- **Accelerate Action** — The first four years of implementation of the *Water for Life* strategy provided a good foundation to begin acting on what we know and the time has come to move from planning to implementation, preferably at an increased pace.

In November 2008, the Government of Alberta released *Water for Life: a Renewal*, with the Alberta Water Council's recommendations incorporated. In this updated strategy, the Government of Alberta observes that the provincial "water landscape" has changed since the original *Water for Life* strategy was released in 2003. Four years of unprecedented economic and population growth followed the strategy's release, as well as increasing climatic uncertainty, the closure of the southern watersheds to new surface water allocations, and an increased need for integrated land-and-water-use planning. The renewed strategy recognizes these new challenges and puts an increased emphasis on long-term sustainability and the increasing need for partnerships to achieve environmental outcomes. Overall, *Water for Life: a Renewal* reaffirms the Government of Alberta's commitment to the *Water for Life* strategy and the wise management of Alberta's water resources new and into the future.

2. Introduction

One of the most important roles of the Alberta Water Council is to regularly review the implementation progress of the *Water for Life* strategy. Last year was an important year for the strategy. It reached the halfway-point of its original ten-year implementation period and underwent a renewal to ensure it remained relevant in light of the economic and population growth that occurred during the first five years of implementation. This report is the third review conducted by the Alberta Water Council and assesses the strategy's implementation progress up to December 31, 2008.

As part of the Council's review process, all sectors represented on the Alberta Water Council, plus Watershed Planning and Advisory Councils, and Watershed Stewardship Groups were invited to provide their input. A survey was employed to better understand each sector's level of awareness concerning *Water for Life* initiatives and actions underway to advance its goals. Input regarding barriers to implementing the strategy and potential solutions to those areas of difficulty was also solicited.

To assess the actions underway within the Government of Alberta, six three-hour interviews were conducted with the provincial government's Water for Life Element Coordinators. An additional interview was held with the provincial government's Water Education Coordinator. These interviews focused on the actions underway in each element of the strategy, integration of the goals and key directions of *Water for Life*, and the next steps and challenges faced in implementing the strategy.

The recommendations identified in this report are based on input from all *Water for Life* partners. The goal of this report is to identify areas where attention and re-focus is required, while supporting and highlighting the progress of ongoing initiatives.

This report is organized to provide a general overview of progress implementing *Water for Life*, and then a review of each goal and key direction's progress. Each element review section contains the following information:

- A summary of what the goal or key direction is intended to achieve.
- A general assessment of the progress to date, including actions completed since the last review, work in progress, and areas that are behind schedule.
- A suggested area of focus and recommendations to advance the strategy's implementation. Some recommendations also have a further guidance section that provides additional detail about the scope and intent of the recommendation.

Water for Life success stories are also highlighted throughout this document. These are only a few examples of the work taking place through *Water for Life* initiatives.

3. General Assessment and Recommendations

This review should be framed within the following general observations, some of which were made as part of the Council's previous review report, but which continue to be appropriate today:

- The *Water for Life* strategy continues to have significant momentum and remains a vital part of water management in Alberta. The actions discussed in this review would not be as well-coordinated and focused without the strategic umbrella and direction of the strategy.
- *Water for Life* is not solely a government initiative. Its success depends on the meaningful commitment and involvement of watershed planning and stewardship groups, industry, municipalities, First Nations, Métis Settlements, and a range of stakeholder and environmental organizations.
- The strategy is complex and challenging. The original actions and targets, set in 2003, were a snapshot in time that reflected the priorities of the day. They have been affected by the subsequent high pace of development in the province and by the realities inherent in executing such an ambitious plan. The release of updated objectives and actions via the anticipated action plan associated with *Water for Life: a Renewal* is necessary to provide the strategy with the update it requires.
- Gaps and timeline lapses are inevitable within the scope of such an ambitious strategy. The key to addressing them is effective adaptive management, which identifies and builds on successes, remediates weaknesses and defines new directions and actions to keep the strategy relevant and current. This review is undertaken within the framework of effective adaptive management.

During the five years of implementation progress that have passed since the original strategy's release, solid, but uneven, progress has been made toward each of the three goals and three key directions. Safe, secure drinking water; reliable, quality water supplies; knowledge and research; and partnership elements of the strategy have all made noticeable progress toward achieving their outcomes. The areas of water conservation and healthy aquatic ecosystems are making progress, but are behind schedule in achieving their stated outcomes. The Alberta Water Council's previous review report said that "[e]fforts to achieve the outcomes must reflect their interdependency. Accordingly, it is important that progress in all areas be consistent and coordinated." This remains true today, so therefore, a greater focus should be put on advancing the healthy aquatic ecosystems and water conservation elements in order to advance the strategy as a whole. The consistent and coordinated implementation of all actions remains critical because of their close interconnections. Actions to advance any one goal or direction often impact the advancement of others.

In 2006, the Minister of Environment was mandated by the Premier to "renew and resource the *Water for Life* strategy." Minister Renner, in turn, invited the Alberta Water Council to provide advice about how this could be done most effectively. The Council's subsequent report, *Water for Life: Recommendations for Renewal* provided two themes to the Government of Alberta: (1) Safeguard our Water Sources, and (2) Accelerate Action. It noted that "[f]ocusing resources and putting true 'muscle' in a few strategic areas [would] most effectively advance the strategy as a whole." It also emphasized the need for the strategy to move away from planning and information-gathering activities toward actions with an on-the-ground effect. In late 2008, the provincial government released *Water for Life: a Renewal*, which reaffirmed the validity and interconnectedness of the strategy's six strategic elements and made minor adjustments to their outcomes to better reflect the current state of water management in Alberta. While a provincial action plan is expected to accompany the already-released renewed *Water for Life* strategy, this has not yet been completed. This work should be expedited to ensure the strategy's implementation actions remain relevant and reflect the current state of water management in Alberta.

Challenges

A few challenges have been previously identified by the Alberta Water Council in various other reports and reviews. Their reiteration in this general assessment was felt to be important due to their potential impact on all six goals and key directions. Effectively addressing these challenges will allow for better leveraging of resources and an increased focus on the *Water for Life* strategy and its broader role within provincial resource management initiatives. These areas have no 'magic bullet' answers; addressing them will be unquestionably complex. All *Water for Life* partners must be responsible for taking action, tracking their progress, and regularly reviewing their effectiveness to ensure these areas, and others, continue to move forward.

Integration

Alberta's natural resources can no longer be managed in isolation. Land, water, air, biodiversity, and the cumulative effects of development must be considered in an integrated and coordinated manner. Currently, a number of initiatives are underway to examine and manage each of these areas and there is a need to clarify how all of these initiatives will 'fit' with one another. A clear opportunity exists to integrate the management of land, air, water, biodiversity and economic development in a meaningful manner to maximize resources and harmonize resource management in Alberta. Failure to do this will result in the dis-jointed management of resources and competing environmental, social and economic interests. An approach which integrates land-use practices, water management, economic development

policies, and utilizes broad stakeholder involvement will maximize the resources available for implementation and ensure broad support for the chosen direction. A clear plan to integrate existing initiatives must be put into effect to ensure that our water resources are safeguarded for future use. This will require an integration of Government of Alberta initiatives and further cooperation among departments.

Challenge 1: Land, water, air, biodiversity, and the cumulative impacts of development must be managed in an integrated and coordinated manner.

Partnership Capacity

All of the initiatives mentioned above have either utilized the partnership approach to management, or have sought broad stakeholder input as part of their work. This has created a situation that is both good and bad; participants in these multi-stakeholder initiatives are being stretched to meet the demands of all of the initiatives to which they have been asked to participate. The Alberta Water Council strongly supports the provincial government's continued use of the partnership approach and the collection of broad stakeholder input and is pleased that input is being sought on such a regular basis. At the same time, the Council recognizes that these requests to participate are demanding on stakeholders. Many individuals represent their sector or organization on several boards, committees, and councils and are concerned about having the capacity to effectively participate on all of them. Additionally, the financial, technical and other resources within the Government of Alberta are being spread across these multiple initiatives and support for water partnerships is at risk of becoming 'lost' among them. The successful execution of the *Water for Life* strategy depends on strong, vibrant partnerships, especially as the strategy moves away from planning and toward on-the-ground implementation. *Water for Life* partnerships are responsible for setting water quality and quantity objectives, water conservation objectives, and aquatic ecosystem objectives and their continued support is required to accelerate action toward all of the strategy's goals. Specifically, there is a need for the Government of Alberta to commit to long-term funding for *Water for Life* partnerships and to increase resources to Watershed Planning and Advisory Councils as they ramp up their work to complete all watershed management plans and begin implementation by 2012.

Challenge 2: *Water for Life* partnerships require many types of resources: staff, technical support, data and information, communication, volunteers, and funding. The need for resources is increasing as the strategy progresses. Resources must be available to partnerships to ensure the necessary implementation actions do not outstrip stakeholder and partnership capacity to execute them.

Leadership

The Alberta Water Council's report *Water for Life: Recommendation for Renewal* recognizes that the implementation of innovative water-management solutions will require focused, senior-level leadership to manage and be accountable for the vision and implementation of the strategy's actions. Leaders and champions are also required within each of the *Water for Life* partnerships, industry, the environmental community, and within other levels of government to ensure the strategy's successful implementation. Failure to provide leadership and strong direction to the *Water for Life* strategy at any level will cause the strategy's implementation to falter and support to diminish. It is of critical importance that leaders within the provincial government, industry, the environmental community, and *Water for Life* partnerships step up and continue to strongly support the strategy's implementation both in their words and actions. Strong leadership will result in the strategy's continuing effectiveness.

> **Challenge 3:** *Water for Life* requires leaders and champions within the Government of Alberta, industry, the environmental community, other levels of government, and within all of its partnerships for successful implementation.

General Recommendations

In addition to the areas of concern noted above, the Alberta Water Council has identified a number of areas where action could effectively advance the implementation of all three goals of the *Water for Life* strategy. While efforts are already underway in these areas, a more complete examination of the subjects suggested here will likely result in significant implementation advances for the strategy, overall. These areas are highlighted in the general overview section because they do not fit neatly under one, or even two, of the strategy's goals. Actions in these areas will impact all three goals, and therefore should have an increased focus in future implementation actions.

Area of Focus: Communication and Education

The *Water for Life* strategy recognizes that citizens, communities, industries, and government must share the responsibility for water management in Alberta and become leaders in the effective and efficient use of water. Fostering an understanding and stewardship ethic among Albertans must be accomplished to achieve the long-term sustainability of Alberta's water resources. The Alberta Water Council's previous review report recommended the adoption of a comprehensive approach to promoting public awareness of water-management issues that goes beyond incremental and isolated education programs. Because *Water for Life* goals are realized through partnerships, implementation will requires effective communication and coordination within and across all partners and the Government of Alberta, as well as

the general public. In order to be effective, strengthened communication and education efforts continue to be a key requirement for the strategy's effective implementation. These two areas of education and communication are tightly connected in the *Water for Life* strategy because the *Water for Life* partnerships disseminate information to the public about the state of their watershed, its management and how they can become involved to improve it. Locally-based initiatives are an effective means of advancing public awareness, promoting involvement, and establishing a commitment from the public for watershed protection. While the recommendation below focuses on education, a recommendation is found under the 'partnership' key direction's review regarding improving communication. Both initiatives should be aware of one another and actively look for opportunities to coordinate their work.

> **Recommendation 1:** Review the effectiveness of the Government of Alberta's current water education programs, identify any gaps and opportunities for collaboration and take action.
>
> **Lead:** The Government of Alberta, through partnerships.

Further Guidance

The review of the effectiveness of the provincial government's water education programs should evaluate the public's current understanding of water issues and determine what additional information can be provided to influence their values and attitudes so that they are better aligned with *Water for Life* values. Once the needs are understood, a targeted education program should be developed and delivered through *Water for Life* partners to influence behavioural and attitudinal changes. The program should be monitored for ongoing effectiveness. Effective communication and coordination between the provincial government and the other *Water for Life* partnerships will be essential for this recommendation's success.

Area of Focus: Source Water Protection

The Alberta Water Council's previous review report stated that "[a]n immediate opportunity exists to define a protection framework that utilizes existing information, resources and legislation to protect sensitive areas." The Council's *Water for Life: Recommendations for Renewal* report took this idea one step further and recognized that water quality and quantity are inextricably linked to land-use planning and the health of aquatic ecosystems. Healthy aquatic ecosystems are the basis of all other water uses; they supply surface and groundwater for safe, secure drinking water and are the basis of the reliable, quality water supplies necessary to support sustainable economic development. Planning and management activities must specifically consider source water protection, including headwaters management,

groundwater recharge zones, and maintaining ecologically sensitive areas. Non-point source pollution and its effective management must also be an explicit consideration in this work because of its impacts on ecosystem health, drinking water supplies and overall water quality. The completion of work in this area is undeniably challenging because of its complicated links with land use planning and sustainable economic development, however, addressing source water protection, including non-point source pollution, directly supports all three *Water for Life* goals. Integration and coordination between land use planning initiatives, basin planning initiatives and economic development must be made.

Recommendation 2: Address source water protection through watershed and regional planning and integrate with emerging and existing regulatory tools

Lead: Government of Alberta

Non-point source pollution can have a large cumulative impact on waterways and has been identified as a gap in addressing source water protection. Taking steps to address it will support the source-to-tap, multi-barrier approach to drinking water safety outlined in the original *Water for Life* strategy. It is also aligned with the Alberta Water Council's *Water for Life: Recommendations for Renewal* report which called for the safeguarding of our water sources and an increased focus on maintaining safe and secure drinking water. Currently there are challenges in engaging all the necessary partners to effectively address non-point source pollution in the province. Efforts must also be made to effectively incorporate source water protection into watershed management planning.

Recommendation 3: Develop a source water protection framework to address the effects of non-point source pollution on provincial water quality.

Lead: Government of Alberta, with input and support from their partners.

Further Guidance

Steps in developing the source water protection framework must include (1) identifying the main sources of non-point source pollution and quantifying them within each major basin through watershed management planning; (2) identifying the best available tools to manage non-point source pollution, which may include incentives, education, best-management practices or legislation; and (3) developing an action plan with clear timelines to implement those tools.

4. Drinking Water

Outcomes

The original *Water for Life* strategy states simply that, "Albertans will be assured that their drinking water is safe." Beneath that goal were listed several short, medium and long-term actions, which were designed to achieve three main outcomes. These outcomes and the goal were carried over in the recently released provincial government report, *Water for Life: a Renewal*.

Original Timeframe	Outcome
Short-term	– Alberta has a comprehensive strategy to protect Albertan's drinking water.
Medium-term	– Albertans have timely access to information about drinking water quality in their communities.
Long-term	– Alberta's drinking water infrastructure meets emerging standards and is managed for long-term sustainability.

Progress Assessment

It is worth noting that the standards and programs governing Alberta's municipal water supplies were relatively robust and mature prior to the release of the original *Water for Life* strategy in 2003. Additionally, excellent progress has been made toward completing the actions identified under the drinking-water goal. Most short-term actions have been completed, and most medium and long-term actions are underway. Specifically, since the Council's last review report, information about drinking water facility test results and recent inspections has become available online, and emergency protocols, including support staff and laboratory capacity, have been established to further protect Albertans from contaminants in drinking water. Furthermore, the implementation of criteria to support the development of regional water systems in the municipal water and wastewater granting system has been fully implemented. Overall, this goal is well on track and Albertans using public drinking water systems can continue to be assured that their drinking water is safe and well-managed.

Activities which are currently underway to continue to advance this goal include a full cost accounting study to ensure Alberta Environment and municipalities understand the full infrastructure and operational costs

City of Calgary

The Bearspaw and Glenmore Water Treatment Plants provide safe drinking water for all residents of the City of Calgary. Upgrades to the Bearspaw Water Treatment Plant were started several years ago, and became fully operational in early 2008. The new Residuals Treatment Facility eliminates process waste discharge to the river and, by recycling the treated water, also reduces the amount of withdrawal from the river system by up to 14 percent. The solids are removed, dewatered and sent to the landfill — not deposited back into the rivers. The program also included upgrades to the filters to help improve performance and increase capacity. Similar upgrades are currently being constructed at the Glenmore Water Treatment Plant, which are expected to be operational in 2011.

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associated with operating their drinking water and wastewater treatment facilities. The provincial government is also working with smaller communities to develop regional operator consortiums, which should build some long-term, sustainable capacity in these areas.

Work also continues on two items highlighted in previous Council implementation review reports. First, the development of a comprehensive drinking water strategy is continuing to progress. The Council's 2007 review report noted that the evolution of the new drinking water strategy was well on track. At this time, although the comprehensive strategy is not yet complete, work in this area is still progressing. Second, work toward an Alberta-First Nations drinking water partnership has also not yet been fully realized, although it remains a priority. The Government of Alberta and Indian and Northern Affairs Canada have a joint three-year project to conduct water needs assessments for First Nations communities. Work is also underway to better link treaty areas into regional drinking water systems and support operator certification. In both of these areas the work is complex and multiple stakeholders are involved, so delays in completing these actions are not unexpected. Both of these initiatives are to be commended and encouraged, however action should be accelerated to ensure their timely completion.

In addition to the work that is currently underway, two new areas of focus are suggested here. In the past, new areas of focus and suggested actions have generally centred on municipal public drinking water systems that are subject to regulation by Alberta Environment under the *Environmental Protection and Enhancement Act*. However, two other types of drinking water systems also operate in Alberta; private systems, and small public systems. All three types are described and defined in the text box below. The recommendations presented here focus on private drinking water systems, and small public drinking water systems, respectively.

Drinking Water System Types in Alberta:

Private Drinking Water Systems

A drinking water system serving a single private home, cottage or farm which is not accessible to the public.

Municipal Public Drinking Water Systems

Drinking water systems serving the public that are regulated by Alberta *Environment under the Environmental Protection and Enhancement Act*, either through an approval or registration. Generally, these systems include any water system that serves the public and uses surface water as its source, or any type of municipal development with more than 15 service connections, regardless of its water source.

Small Public Drinking Water Systems

Small, communal facilities serving the public that are regulated under the Public Health Act. These systems usually use groundwater as their source. Campgrounds, schools, community halls, and truck stops may utilize a small public drinking water system.

Area of Focus: Private Drinking Water System Information Availability

It is estimated that 500,000 Albertans draw their water from private drinking-water systems. Private operators are responsible for the maintenance of their systems. However, both the Government of Alberta and the Alberta Water Council recognize that there is a need to review and improve the management of private drinking-water systems. Previously, Alberta Health and Wellness completed a manual to assist private users in the design, operation and maintenance of their private drinking water system. Effort must continue to ensure that all owners of private drinking-water systems have access to the information necessary to safely operate their system and understand the risks associated with potential mismanagement.

Recommendation 4: Review, enhance and expand existing education and outreach programs for those operating private drinking water systems. Every private drinking water system operator in Alberta should be made aware of available information and how they can access it.

Lead: Government of Alberta

Further Guidance

Existing education and outreach programs should be expanded to focus on:

- Methods to increase the understanding and identification of risks associated with private drinking water systems,
- Source water protection,
- Water treatment and other operating considerations,
- System maintenance, and
- Performance measures.

Area of Focus: Small Public Drinking Water System Standards

An opportunity exists to review and enhance the standards of small public drinking water systems and increase their monitoring. The standards regulating these systems have not been subject to review for a number of years and therefore, it is timely to update their standards so they align with those of municipal public drinking water systems. The development of an accompanying monitoring program would be necessary to support the new standards. This recommendation is aligned with the *Water for Life* strategy's focus on continuous improvement.

Recommendation 5: Review the standards for small public drinking water systems and enhance their accompanying support and monitoring programs.

Lead: Government of Alberta

5. Healthy Aquatic Ecosystems

Outcomes

The original *Water for Life* strategy states that "Albertans will be assured that the province's aquatic ecosystems are maintained and protected." The original outcomes identified to achieve this goal were roughly carried over into the province's renewed strategy, with some of the wording strengthened to reflect a shift from planning to implementation. The outcomes listed in the table below reflect the wording in *Water for Life: a Renewal*, but maintain the timeframes from the original strategy.

Original Timeframe	Outcome
Short-term	– Protection of aquatic ecosystems in critical areas.
Medium-term	– Establishment of priorities for sustaining aquatic ecosystems to be implemented through watershed plans.
Long-term	– Management and allocation of water to sustain aquatic ecosystems and ensure their contribution to Alberta's natural capital and way of life is maintained.

Progress Assessment

Progress has been made in completing the actions identified under the healthy aquatic ecosystems goal; however it is behind schedule. Many short-term actions are now complete and several medium and long-term actions have been initiated. Ongoing challenges in achieving this goal include: (1) acquiring an objective, science-based understanding of aquatic ecosystems and their status, and (2) determining the actions that are required to maintain or improve their health. The actions identified in the original *Water for Life* strategy to advance the goal of healthy aquatic ecosystems were very broad and somewhat non-specific. This has made generating and tracking concrete progress towards achieving healthy aquatic ecosystems difficult and has resulted in little visible on-the-ground impact. Although this element remains behind schedule, positive advances have been made since the last review report in the development of science-based aquatic health assessment and decision support tools, such as the Fish Community Index tool and the completion of a wetland inventory data collection plan. The Alberta Water Council also completed their recommendations to the Government of Alberta regarding the development and implementation of a new provincial wetland policy, thus setting the groundwork for the creation of a new policy.

In 2008 the Alberta Water Council initiated the Healthy Aquatic Ecosystems Project Team to recommend how the Alberta Water Council and other organizations could most effectively advance the healthy aquatic ecosystems goal. Their work is expected to be complete in early 2009. Other work which is currently underway to advance this goal includes the collection of wetland inventory data and the development of wetland assessment tools, such as the wetland classification system, to support the anticipated wetland policy. Additionally, the province's nine provincial Watershed Planning and Advisory Councils are in various states of completing their *State of the Watershed* reports and *Watershed Management Plans* for each basin. This work is not insignificant and its impact should not be underestimated. Collectively, these tools will support informed land management decisions and should result in a more effective aquatic ecosystem management system in Alberta.

Future efforts should focus on prioritizing and implementing actions to advance this goal, including those recommended by the Council. Efforts must also continue to establish a clear vision for the long-term management of all aquatic ecosystems including riparian areas, lakes, rivers, streams and wetlands. Due to the rapid pace of social, economic and environmental change there is an immediate need for on-the-ground initiatives to help identify and protect critical aquatic ecosystems in Alberta. Initiatives such as the identification and protection of sensitive aquatic ecosystems as well as the development of a provincial wetland policy are critical steps toward safeguarding Alberta's aquatic ecosystems. The Alberta Water Council continues to recognize the immediate need for the Government of Alberta to develop and implement a provincial wetland policy. A strong policy is integral for advancing this goal of the *Water for Life* strategy. The renewed *Water for Life* strategy and initiatives such as the *Land Use Framework* offer an excellent opportunity to move this strategic outcome forward and strongly link with actions and initiatives identified by the Alberta Water Council. Although information gaps still exist, immediate action can be taken to advance the goal of healthy aquatic ecosystems using existing knowledge and tools.

Lakewatch

The Alberta Lake Management Society's Lakewatch Program promotes local understanding and management of lakes and watersheds by involving residents in water sample collection. Lakewatch staff and local volunteers collect reliable water quality data on several lakes in Alberta, which are used by Alberta Environment to track long-term trends in water quality and to identify potential sources of pollutants in lakes. As a result, local participants learn about their watershed and gain an understanding of their lake's functions and management issues. Lakewatch Program results are presented at the annual ALMS workshop, where engaged lake-users and watershed professionals exchange ideas and discuss solutions to their local issues.

www.alms.ca

Area of Focus: Priorities

Achieving the outcomes for this goal will require a better science-based understanding of aquatic ecosystems and a clear direction and vision for the long-term management of aquatic ecosystems in Alberta. This must include an action plan with specific timelines and tasks to strategically advance this goal. This will allow programs to focus on identified priorities and their implementation. In 2008, the Alberta Water Council created the Healthy Aquatic Ecosystems Project Team to identify key areas of focus and guide new efforts and activities towards those most likely to advance the healthy aquatic ecosystems goal. The resulting report is expected to be released in spring of 2009 and will provide some new direction for this goal. It is important that these new areas of focus should not shift efforts away from ongoing initiatives such as the development of a provincial wetland policy.

Recommendation 6: Develop a provincial healthy aquatic ecosystems implementation plan, utilizing the findings of the Alberta Water Council's Healthy Aquatic Ecosystems Project Team, including clear and timely objectives.

Lead: Government of Alberta

Further Guidance

The following principles should be applied when developing a provincial action plan for healthy aquatic ecosystems:

- The provincial healthy aquatic ecosystems implementation plan should include those actions which have already been recommended or recognized as important for advancing this goal and should incorporate the recommendations put forward by the Alberta Water Council.
- The development of the implementation plan should not delay any actions that are critical, currently underway or in the planning stage. Many of the needs in this area can be addressed with currently available information.
- The action plan must contain measurable targets and clear timelines.

6. Reliable, Quality Water Supplies

Outcomes

The original *Water for Life* strategy states that "Albertans will be assured that water is managed effectively to support sustainable economic development." The Provincial Government's renewed strategy echoes that goal word-for-word. The outcomes in the table below are taken from *Water for Life: a Renewal*, but reflect the original strategy's timelines. Minor wording changes from the original strategy to the renewed strategy do not appear to reflect any difference in intent.

Original Timeframe	Outcome
Short-term	– Implementation of a broad range of water management tools. – Increased awareness for all Albertans of the holistic value of water — as both a part of the economy and improved quality of life.
Medium-term	– Establishment of water management objectives and priorities that support sustainable economic development to be implemented through watershed plans.
Long-term	– Management and allocation of water to support sustainable economic development and the strategic priorities of the province.

Progress Assessment

This goal of the *Water for Life* strategy is meant to help Albertans understand and manage their water supplies to support sustainable economic development, with the understanding that water within each basin is a finite resource. The management of surface and groundwater supplies for quantity and quality must consider a number of factors, which all fall under this *Water for Life* goal:

- Transboundary water agreements,
- The water allocation system and its accompanying regulations,
- Supply management,
- Demand management,
- Regional planning and goal-setting for water quantity and quality objectives, and
- Flood mitigation issues.

Demand management, including water conservation, efficiency and productivity, is discussed in more detail in section nine of this report, titled *Conservation*.

Work toward reliable, quality water supplies since the last review report has largely focused on the collection of information to support decision-making. Several research reports have been completed to date, or are expected to be completed in the near future, including:

- *Water for Life: Current and Future Water Use in Alberta*. Released in November 2007, this report provides a snapshot of 2005 water use in Alberta and projects future water use until 2025 for each major basin and sector.
- *Assessment of Potential Storage Sites and Diversion Scenarios*. Released in January 2008, this report compares potential water storage sites and reviews the challenges that could be associated with developing them.
- *Alberta Alternative Water Supply Storage and Management Methods*. This report has not yet been released, but is expected in 2009. It will evaluate alternative water storage and management methods, such as water yield enhancement; controlled water supply storage; and water supply management and reuse.
- *Water Supply Assessment for Alberta*. This report is also expected in 2009. It will provide information on current and projected future water supplies by major river basin, including groundwater and climate change considerations.

Two other notable actions have been completed since the Council's last review report. First, a decision support system called the Water Act Temporary Diversion Electronic Review System (WATERS) was completed in 2008 to support temporary water diversion licence decision-making by Alberta Environment staff. Second, a program to promote full-cost accounting for municipal drinking-water facilities has also been completed. This voluntary program provides waterworks owners with the tools necessary to report and track infrastructure, operational and administrative costs associated with supplying drinking water to Albertans.

Several initiatives will persist into 2009 and beyond. A review of full-cost accounting for municipal wastewater services is in progress, and will be an expansion of the municipal drinking water full-cost accounting initiative that was recently completed. It is intended to promote fiscal planning amongst municipal waterworks systems. The Government of Alberta is also still developing and implementing several transboundary water agreements in cooperation with neighbouring jurisdictions. Finally, the Alberta Water Council has

Wastewater Recycling

In April 2006, Canada's largest membrane-based water reuse facility began delivering water to Petro-Canada's Edmonton refinery. The membrane treatment plant produces 15 ML/d of high quality recycled water. Environmentally, this approach reduces the contaminant loading from the Gold Bar plant effluent to the North Saskatchewan River and helps to improve downstream water quality. Funded by Petro-Canada, this unique private/public partnership is an Alberta first and leads the way in finding alternative solutions to challenging environmental issues.

www.petro-canada.ca

been working to provide recommendations to the provincial government regarding how the current water allocation *transfer* system could be improved to better achieve social, environmental and economic outcomes. Work on this project is expected to be complete in 2009. This work is complementary to provincial government efforts to review and improve its current water allocation system.

An important underlying assumption of this strategic outcome is that the enhancement of Alberta's water supply reliability will need to extend beyond current water management methods and policies. The Alberta Water Council's previous review report identified the need to implement a broad range of new and innovative tools for managing water supply and demand. This recommendation was echoed in the Alberta Water Council's 2008 *Recommendations for Renewal* report. However, the suite of actions underway in 2008 focused on enhancing *existing* mechanisms for managing supply and demand, such as the development of an automated decision support system for the temporary diversion of water licences. These mechanisms are important, but fall short of the stated goal. Two areas requiring greater focus are suggested below to help the development of new and innovative water supply and quality management tools.

Area of Focus: Water Allocation Transfer System

An improved system for re-allocating water within closed basins is necessary. In order for economic development to continue in southern Alberta, a mechanism must be in place to transfer water from one licencee to another, since new surface water allocations are no longer available in Alberta's "closed" basins. The enhanced water allocation transfer system should focus on achieving social, environmental and economic outcomes and should explore new tools or management methods for reaching them. The Alberta Water Council's Water Allocation Transfer System Upgrade Project (WATSUP) Team is examining this issue and expects to provide some direction and guidance for this work.

Recommendation 7: Develop and implement an enhanced water allocation transfer system.

Lead: Government of Alberta and its partners

Area of Focus: Water Storage Solutions

The work underway to examine Alberta's water supply management has to date looked at expected demand, expected supply, and potential solutions to increase Alberta's available water supplies. Water storage solutions will be necessary in southern Alberta to ensure sustainable economic development, so the widest possible suite of options should be considered to ensure the best decisions are made. Balance is very important in considering water storage options. Engineered solutions must be considered on an equal level with land management, demand management and ecosystem-based storage options, such as increasing wetland area, to ensure a holistic approach to water supply management. Examining a wide variety of potential water storage solutions may provide new tools and methods to address the water shortages expected in southern Alberta and other parts of the province.

Recommendation 8: Continue, but broaden, the examination of innovative water storage solutions. This work should include an examination of ecosystem-based water storage solutions.

Lead: Government of Alberta and its partners

7. Knowledge and Research

Outcomes

The original *Water for Life* strategy recognizes that good information is the basis of good management, and that all Albertans have a shared responsibility for water management. Therefore, the strategy says that "Albertans will have the knowledge needed to achieve safe drinking water, efficient water use, and healthy watersheds." The wording of this key direction is slightly altered in *Water for Life: a Renewal* to explicitly reflect the three goals of the strategy.

The original strategy did not contain specific outcomes for any of the three key directions; however the renewed strategy contains specific outcomes, which are shown below. Timelines for have not yet been set, but are expected with the renewed *Water for Life* strategy's accompanying action plan.

Outcome
– An understanding by *Water for Life* partners of the state of Alberta's drinking water, aquatic ecosystems, and the quality and quantity of surface and groundwater resources.
– Easy access to knowledge and information regarding Alberta's water resources and applicable research to make informed water and related air, land and resource management decisions.
– Incorporation of education tools and strategies into all *Water for Life* actions.

Progress Assessment

Aimed at providing a framework for the acquisition of information, the short term actions identified under this key direction are on-track. Significant progress has been made in completing both the short and medium-term actions under the knowledge and research goal since the last review report. In 2006 the province made a significant commitment of $30 million to create the Alberta Water Research Institute, an organization that facilitates the development of tools, procedures, processes and technologies in support of *Water for Life* by funding and initiating research in cooperation with Alberta's Universities, the Alberta Research Council, the Alberta Energy Research Institute and other organizations. As a result of this commitment, several key *Water for Life* research initiatives are now underway, including a major research project aimed at supporting a new provincial wetland policy. Research needs for achieving both healthy aquatic ecosystems and reliable supplies outcomes have also been identified and initiated. An initial assessment of surface water quality and aquatic ecosystem health was also completed in October 2007 titled, *An Initial Assessment of Ecological Health of Aquatic Ecosystems in Alberta: Water Quality, Sediment Quality and Non-Fish Biota*. This study provides a foundation for on-going aquatic ecosystem measurement and water quality monitoring work in Alberta.

Actions that will continue into 2009 include the Government of Alberta's work to complete groundwater mapping along the Calgary-Edmonton corridor using airborne geophysics and confirmatory drilling. This information will augment the existing groundwater mapping, created from 1968 – 78 and will result in a new spatially-organized inventory of Alberta's groundwater. The AWRI will continue to play an important role in coordinating and promoting research to support the *Water for Life* strategy on an on-going basis. Work has also been initiated on a provincial water information centre and water quality evaluation and public reporting are being updated and enhanced. In-stream flow needs assessments for several watersheds are also underway. Finally, a review of aquatic ecosystems issues and monitoring techniques has been initiated..

Although a noteworthy amount of work has been completed to advance this key direction, a gap remains in providing Albertans with the access to information and research needed to understand the state of their water resources. As *Water for Life* initiatives advance into the implementation phase there is a growing need to foster an exchange of knowledge and information to enable informed management decisions. This will require the development of new connections between people, information and resources. Enabling people to understand and apply new research on a watershed basis is a critical step for improving watershed management. A long-term commitment to developing an information network for sharing water knowledge is required.

Alberta Water Research Institute

The Alberta Water Research Institute was established by the Government of Alberta in the spring of 2007 to coordinate leading-edge research to support the *Water for Life* strategy. The goal of the Institute is best articulated in its slogan 'where ideas flow,' as it strives to seize every possible opportunity to advance knowledge, science, water management and public policy decision-making to fulfill the goals and objectives of Alberta's *Water for Life* strategy. With an initial $30 million investment, the Institute's scope is not limited by geographic boundaries. It seeks out the best thinkers and the best information, provincially, regionally, nationally and internationally, to help secure the long-term safety, quality and sustainability of Alberta's water resources.

www.waterinstitute.ca

Area of Focus: Communication

The creation of the Alberta Water Research Institute enabled data capture and communication for those initiatives funded through this organization. However, there remains a need for a coordinating body to capture and communicate water research for application within Alberta by non-technical experts. Translating research into useable knowledge continues to be a challenge for improving water management in Alberta. The following recommendation is aligned with the recommendations from the Alberta Water Council's report, *Recommendations for a Watershed Management Planning Framework* which identified the need to improve the exchange of information among *Water for Life* partners.

Recommendation 9: Develop mechanisms to coordinate and communicate data, knowledge, and research. Efforts should be made to connect partners and to coordinate among similar research initiatives.

Lead: Government of Alberta, with assistance from the Alberta Water Council and the Alberta Water Research Institute

8. Partnerships

Outcomes

The original *Water for Life* strategy says that "Citizens and stakeholders will have opportunities to actively participate in watershed management on a provincial, regional and community basis." This key direction has been changed in *Water for Life: a Renewal* to place a greater emphasis on the role of *Water for Life* partnerships, and states that "*Water for Life* partners are empowered, informed and fully engaged in water stewardship."

The original strategy did not contain specific outcomes for any of the three key directions; however the renewed strategy contains specific outcomes, which are shown below. Timelines for have not yet been set, but are expected with the renewed *Water for Life* strategy's accompanying action plan.

Outcome
– Timely and strategic advice given to governments, industry and non-government organizations by the Alberta Water Council.
– Maintaining Watershed Planning and Advisory Councils as leaders in watershed assessment and planning.
– Continued work by Watershed Stewardship Groups to take community-level action to safeguard Alberta's water resources.

Progress Assessment

The achievement of the short-term actions for partnerships involved an ambitious and comprehensive plan to develop capacity within the three types of partnerships described in the *Water for Life* strategy: the Alberta Water Council; Watershed Planning and Advisory Councils; and Watershed Stewardship Groups. The number of people involved in *Water for Life* partnerships has grown exponentially and now numbers over 1000. To date, nine Watershed Planning and Advisory Councils (WPACs) have been established and over 150 Watershed Stewardship Groups are working to improve their local watersheds. The Alberta Water Council has completed two recommendation reports to support this key direction, *Strengthening Partnerships*, and *Recommendations for a Watershed Management Planning Framework* which provide recommendations to the Government of Alberta to strengthen the shared governance framework in which partnerships operate and to clarify the watershed management planning process. Work will continue into 2009 and beyond to implement the recommendations put forward by the Council.

Watershed Planning and Advisory Councils are also continuing their work to complete their *State of the Watershed* reports and *Watershed Management Plans*. Each WPAC is at a different stage of completion, but overall, work is progressing fairly well. Efforts to establish an Athabasca River WPAC are underway, and the Peace River area also remains outstanding. Finally, Watershed Stewardship Groups and the Alberta Water Council will continue their work in support of *Water for Life* into 2009 and beyond.

As the *Water for Life* strategy evolves, partnerships continue to be one of the cornerstones of the strategy and are necessary for engaging Albertans in water management. The Government of Alberta's renewed *Water for Life* strategy identifies the need to continue to develop and improve watershed management knowledge, tools and programs and to resource and support these partnerships. The work of these partnerships will only increase as the strategy moves from planning to action, therefore care must be taken to ensure available resources are matched with expectations. The need for sustainable, reliable resourcing to ensure the sustainability of these partnerships was highlighted in previous Council reports, as well as in this review's general assessment section. Resources need to include not only financial support, but also technical support, data and information, and human resources. The work of Alberta's water partnerships will impact all six of the strategy's goals and key directions and therefore should be carefully addressed. With multiple initiatives currently underway, there is also a need to align the long-term goals of the *Water for Life* strategy with other resource-based initiatives, such as the *Land Use Framework*.

Milk River Watershed

The Milk River Watershed Council of Canada has been busy studying and improving their watershed since their formation in 2006. They recently released the *Milk River State of the Watershed Report 2008*, and completed studies on supplemental water supply options, and sediment and erosion processes. In partnership with Alberta Agriculture and Rural Development and Alberta Environment, all licensed water users in the Milk River watershed have agreed to install water meters to measure water use in the basin. This is especially important to meet the terms of the Apportionment Agreement on water use. The Council has also implemented a water quality monitoring program in partnership with four local municipalities. The MRWCC is currently developing an Integrated Watershed Management Plan for the Milk River.

www.milkriverwatershedcouncil.ca

Area of Focus: Communication

As *Water for Life* partnerships evolve to take on long-term watershed management planning, it will be critical to ensure that they are well funded and have the information required to meet their mandates. Increased communication among partners is required to reach this long-term vision. As identified in the Alberta Water Council's report, *Strengthening Partnerships*, there continues to be a need for a formal communication strategy to improve linkage among partnerships, increase the exchange of information, and promote collaboration and consultation.

Recommendation 10: Develop a communications plan outlining the key processes and tools that will enable effective and efficient communication and coordination among *Water for Life* partners including Watershed Planning and Advisory Councils, Watershed Stewardship Groups, the Alberta Water Council, the Government of Alberta and the public.

Lead: Government of Alberta and *Water for Life* partners.

Area of Focus: Sustainability

Strong volunteer support has been the key to the success of *Water for Life* and the dedication and motivation of these people is striking. An ongoing commitment to watershed planning will depend on the capacity of WPACs and WSGs to maintain strong volunteer support and enthusiastic participation. Leadership training will provide partners with the capacity to maintain a strong and sustainable volunteer base committed to watershed planning.

Recommendation 11: Ensure the long-term sustainability of *Water for Life* partnerships.

Lead: Government of Alberta and *Water for Life* partners.

Further Guidance

The following ideas should be explored in ensuring the sustainability of *Water for Life* partnerships:

- Provide opportunities for leadership development to WPAC Executive Directors, Chairs, and others so they have the tools to maintain momentum and create *Water for Life* champions.
- Provide opportunities to WPACs and the Alberta Water Council for organizational planning to ease staff transition and ensure their long-term sustainability.
- Currently, WPACs hold an annual *WPAC Summit* where they share information, success stories and paths around obstacles. This forum provides excellent opportunities for networking, communication and collaboration for those organizations. An opportunity exists to build a similar forum, but for all *Water for Life* partnerships. This opportunity should be explored as potential synergy with the *WPAC Summit*, and not as a replacement or expansion of the existing program.
- Support and develop the capacity of existing resource networks, such as the Alberta Stewardship Network, so they can, in turn, provide capacity to *Water for Life* partners.

9. Water Conservation

Outcomes

Water conservation is a key direction in the original *Water for Life* strategy that seeks to ensure that Albertans are leaders in water conservation by using water efficiently and effectively, and demonstrating best practices in their water use. The goal for this key direction in the renewed strategy is that "all sectors understand how their behaviours impact water quality, quantity and the health of ecosystems, adopt a water conservation ethic, and take action." No specific outcomes were included for key directions in the original *Water for Life* strategy; however *Water for Life: a Renewal* contains a single, specific outcome for this key direction which is reflected in the table below. Timelines for have not yet been set, but are expected with the renewed *Water for Life* strategy's accompanying action plan.

Outcome
– Demonstration in all sectors of best management practices, ensuring overall efficiency and productivity of water use in Alberta improves 30 percent from 2005 levels by 2015. This will occur when either: • Demand for water is reduced; or • Water use efficiency and productivity are increased.

Progress Assessment

A considerable amount of work has been done to advance this key direction. Most short-term actions are now complete, and good progress has been made toward the medium- and long-term actions. Since the last review report, the online water use reporting system has been enhanced to accept groundwater information and a major education initiative called *One Simple Act* was launched by the Government of Alberta to promote environmental stewardship. One of the three pillars of this program is water conservation. Additionally, the *Environmental Tools Guide* has been completed by the Government of Alberta and posted online in an interactive format. This guide introduces the various types of tools available to achieve environmental goals and offers advice on selecting the appropriate tool. The five main types of tools examined include: (1) voluntary mechanisms, (2) information disclosure, (3) cooperative agreements, (4) market-based and fiscal instruments, and (5) regulation. This project completes some of the work toward evaluating the merit of market-based instruments to meet water conservation, efficiency and productivity objectives. Finally, in 2008, the Alberta Water Council completed their framework for developing water conservation, efficiency and productivity sector plans. Seven water-using sectors voluntarily committed to develop these plans by the end of 2010 and should be commended for their efforts. Two sectors have begun work to test the process and content for completing their sector plans and

the remaining five have started organizing themselves to complete the necessary tasks. Water conservation, efficiency and productivity plans will identify areas for improvements and outline targets and reporting commitments for each sector.

Actions which are currently underway and will extend into 2009 and beyond include the development of a handbook to assist water users who are not metered in accurately measuring their water use so it can be reported in the online system. Work by the Water Strategy Economic Instruments Team also continues using the *Environmental Tools Guide* to assess which economic tools could be applied to water conservation, efficiency and productivity issues in Alberta. Work by the seven major water-using sectors to complete their water conservation, efficiency, and productivity plans will continue until 2010. A new initiative is also underway, which is being led by Alberta Agriculture and Rural Development. This program will aim to educate agricultural producers about Best Management Practices to promote water quality and optimize producers' water use efficiency and productivity. This program is in its second year of a five-year plan. Finally, work on the *Value of Water Study* continues, despite an unclear target audience for the report. This study is intended to help Albertans understand the value of water to the economy and to their quality of life.

A few notable gaps remain in advancing this key direction. First, water use reporting by all licence holders must be achieved in order to determine a baseline estimate of water use in Alberta. This estimate will be important for effectively managing Alberta's water supply and measuring future improvements in water conservation, efficiency and productivity. Currently, voluntary reporting by licence holders remains low, at approximately 30% participation. Until close to100% reporting is achieved, the volume of water actually being used will remain unknown and an adequate baseline for measuring improvements in conservation will remain impossible. Concerns were also raised regarding the user-friendliness of the online reporting system. Second, the *Value of Water Study* was identified as a short-term action in the original *Water for Life* strategy, but remains incomplete, despite the good progress noted during the Council's last review report. Additional consideration of the target audience and intended use of this report is necessary to focus the scope of the work being undertaken. Finally, work to advance the identification and implementation of new economic instruments to advance water conservation, efficiency and productivity has been progressing more slowly than expected.

Nose Creek Rehabilitation

Spearheaded by Trout Unlimited Canada and the Nose Creek Watershed Partnership in 2006, the Nose Creek Rehabilitation Project (NCRP) has been made possible with financial contributions from Petro Canada, the Calgary Foundation, Unilever-Evergreen, TUC National and the Alberta Stewardship Network. The Nose Creek Rehabilitation Project focuses on restoring degraded areas of Nose Creek, a highly channelized stream that is heavily influenced by stormwater and predominantly flows adjacent to Highway 2 through Airdrie and Calgary. Volunteers, guided by staff from the Nose Creek Watershed Partnership and Trout Unlimited, have completed over 25 restoration projects throughout the Nose Creek Watershed since 2006, including the restoration of eroded banks using soil bioengineering techniques, erosion prevention with live willow staking, clean ups and noxious weed removal.

www.nosecreekpartnership.com

Area of Focus: Water Use Reporting

The online water use reporting system for water-licence holders became operational in 2006 and received upgrades to include groundwater information in 2007. Currently, water use reporting by licence holders is voluntary and participation is low, with roughly 30% of licence holders reporting their water use. Efforts have been made to improve the level of participation when licences are renewed or issued however, the collection of this information is fundamental to effective water management in Alberta and its absence remains a challenge for advancing water conservation, efficiency and productivity. The recommendation below is aligned with the Alberta Water Council's report, *Recommendations for Water Conservation, Efficiency and Productivity Sector Planning*, which advises that mandatory water use reporting be explored. Additional work should be undertaken to ensure the online reporting system is as user-friendly as possible to reduce the administrative burden to those who would use it.

Recommendation 12: Implement mandatory water use reporting to better understand actual water use by all water-licence holders.

Lead: Government of Alberta

Area of Focus: Problem Definition

Identifying, analyzing, recommending, and implementing the economic instruments that will most effectively encourage water conservation, efficiency and productivity in Alberta is a broad initiative that risks losing momentum and focus. While some foundational work has been started by the Water Strategy Economic Instruments team, this action requires more focus and broader stakeholder input before it can effectively advance this key direction. Opinions about which instruments should become areas of focus remains a highly-energized topic of debate, and therefore, broader input and discussion should be sought to ensure that all stakeholders have had input to, and are supportive of, any new tools that are recommended to advance water conservation, efficiency and productivity. An opportunity exists to link this work to that underway with the Alberta Water Council to advance water conservation, efficiency and productivity, both to focus the discussion and provide directional input.

Recommendation 13: To complete the examination of economic instruments to advance water conservation, efficiency, and productivity in Alberta, the provincial government should work with the Alberta Water Council to ensure all stakeholders have input to, and support the implementation of, new tools to advance this key direction.

Lead: Government of Alberta

10. Conclusion

The recommendations provided in this review are intended advance the *Water for Life* strategy's implementation progress. The key to doing this is effective adaptive management, which regularly identifies and builds on successes, remediates weaknesses, and defines new directions and actions so the strategy remains current and relevant. This third review report represents one of the Alberta Water Council's most important roles: regularly reviewing the *Water for Life* strategy's implementation progress and recommending new areas of focus that will advance the strategy and ensure its continued relevance.

During the five years of implementation that have passed since the original strategy's release, solid, but uneven, progress has been made toward each of the strategy's three goals and three key directions. Safe, secure drinking water; reliable, quality water supplies; knowledge and research; and partnership elements of the strategy have all made noticeable progress toward achieving their outcomes. The areas of water conservation and healthy aquatic ecosystems are making progress, but are behind schedule in achieving their stated outcomes; however gaps and timeline lapses are inevitable within the scope of such an ambitious strategy.

Water for Life has reached a critical stage in its implementation. The focus of the strategy must shift from information-gathering and outcome-setting to implementing actions that achieve on-the-ground results. In order to accomplish this, land and water management must become effectively integrated. Several complementary initiatives are underway, such as the *Land Use Framework* and Cumulative Effects Management. The *Water for Life* strategy must maintain a strong focus on effectively integrating with these other activities in order to achieve its stated outcomes.

Water for Life is a complex and challenging strategy that demands effective leadership, policy integration, and expanding partnership capacity to achieve its outcomes. Addressing these areas will likely remain some of the largest challenges to implementing the strategy and making progress toward all of the goals and key directions. The consistent and coordinated implementation of all actions remains critical because of their close connections.

Water for Life is not solely a government initiative. Its success depends on the meaningful commitment and involvement of watershed planning and stewardship groups, industry, municipalities, First Nations, Métis Settlements, the environmental community and the public. Therefore, it is important that stakeholders continue to value and support the implementation of *Water for Life*. The overarching policy umbrella that it provides remains a valuable and important tool for water management in Alberta.

Bow River Basin

The Bow River Basin Council launched the Bow Basin Watershed Management Plan in 2005 immediately after it published its State of the Basin Report. In September 2008, both the City of Calgary and Alberta Environment committed their support to the Bow Basin Watershed Management Plan. While all 36 Key Stakeholders are very important, these two are particularly noteworthy as the City represents over 75% of the Basin's 1.3 million inhabitants, and Alberta Environment is the legal water manager for the province.

Through a volunteer-led and consensus-based planning process, 61 recommendations have been developed that span 17 parameters across the 7 major reaches of the Bow River. The goal was not to be prescriptive, but simply to provide guidance as to where efforts might yield the greatest benefit. The Plan's Water Quality Objectives now provide planners and designers with specific targets that balance social, economic and ecological needs of downstream communities.

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Appendix A. Committee Members

Committee Member	Sector
Diana Boylen	Federal Government
Ken Brown	WPACs
Lisa Maria Fox	Environmental
Al Kennedy	Chemical & Petrochemical
Cam Lane	Alberta Environment
Ron Pearson	Fish Habitat Conservation
Rob Pritchard	Large Urban
Judy Smith	Mining
Kevin Stashin	Oil and Gas

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Appendix B. Challenges & Recommendations

Challenges

Challenge 1: Land, water, air, biodiversity, and the cumulative impacts of development must be managed in an integrated and coordinated manner.

Challenge 2: *Water for Life* partnerships require many types of resources: staff, technical support, data and information, communication, volunteers, and funding. The need for resources is increasing as the strategy progresses. Resources must be available to partnerships to ensure the necessary implementation actions do not outstrip stakeholder and partnership capacity to complete them.

Challenge 3: *Water for Life* requires leaders and champions within the Government of Alberta, industry, the environmental community, other levels of government, and within all of its partnerships for successful implementation.

Appendix C. Challenges & Recommendations

Recommendations

General 1:	Review the effectiveness of the Government of Alberta's current water education programs, identify any gaps and opportunities for collaboration and take action.
General 2:	Address source water protection through watershed and regional planning and integrate with existing and emerging regulatory tools.
General 3:	Develop a source water protection framework to address the effects of non-point source pollution on provincial water quality.
Drinking Water 4:	Review, enhance and expand existing education and outreach programs for those operating private drinking water systems. Every private drinking water system operator in Alberta should be made aware of available information and how they can access it.
Drinking Water 5:	Review the standards for small public drinking water systems and enhance their accompanying support and monitoring programs.
Healthy Aquatic Ecosystems 6:	Develop a provincial healthy aquatic ecosystems implementation plan, utilizing the findings of the Alberta Water Council's Healthy Aquatic Ecosystems Project Team, including clear and timely objectives.
Reliable, Quality Supplies 7:	Develop and implement an enhanced water allocation transfer system.
Reliable, Quality Supplies 8:	Continue, but broaden, the examination of innovative water storage solutions. This work should include an examination of ecosystem-based water storage solutions.
Knowledge and Research 9:	Develop mechanisms to coordinate and communicate data, knowledge, and research. Efforts should be made to connect partners and to coordinate among similar research initiatives.
Partnerships 10:	Develop a communications plan outlining the key processes and tools that will enable effective and efficient communication and coordination among *Water for Life* partners including Watershed Planning and Advisory Councils, Watershed Stewardship Groups, the Alberta Water Council, the Government of Alberta and the public.
Partnerships 11:	Ensure the long-term sustainability of *Water for Life* partnerships.
Conservation 12:	Implement mandatory water use reporting to better understand actual water use by all water-licence holders.
Conservation 13:	In order to ensure all stakeholders have input to, and support the implementation of, new tools to advance water conservation, efficiency, and productivity, the provincial government should work with the Alberta Water Council to complete the examination of economic instruments.

Appendix D. Renewed Water for Life Outcomes

Element	Outcomes
Safe, Secure Drinking Water	– A comprehensive strategy to protect Albertan's drinking water – Timely access for all Albertans to information about drinking water quality in their communities – Adherence of Alberta's drinking water infrastructure to emerging standards and management for long-term sustainability.
Healthy Aquatic Ecosystems	– Protection of aquatic ecosystems in critical areas. – Establishment of priorities for sustaining aquatic ecosystems to be implemented through watershed plans. – Management and allocation of water to sustain aquatic ecosystems and ensure their contribution to Alberta's natural capital and quality of life is maintained.
Reliable, Quality Water Supplies for a Sustainable Economy	– Implementation of a broad range of water management tools. – Increased awareness for all Albertans of the holistic value of water – as both a part of the economy and improved quality of life. – Establishment of water management objectives and priorities that sustainable economic development to be implemented through watershed plans. – Management and allocation of water to support sustainable economic development and the strategic priorities of the province.
Knowledge and Research	– An understanding by Water for Life partners of the state of Alberta's drinking water, aquatic ecosystems, and the quality and quantity of surface and groundwater resources. – Easy access to knowledge and information regarding Alberta's water resources and applicable research to make informed water and related air, land and resource management decision. – Incorporation of education tools and strategies into all *Water for Life* actions.
Partnerships	– Timely and strategic advice given to governments, industry, non-government organizations by the Alberta Water Council. – Maintaining Watershed Planning and Advisory Councils as leaders in watershed assessment and planning. – Continued work by watershed stewardship groups to take community-level action to safeguard Alberta's water resources.
Water Conservation	– Demonstration in all sectors of best management practices, ensuring overall efficiency and productivity of water use in Alberta improves by 30% from 2005 levels by 2015. occur when either: • Demand for water is reduced or • Water use efficiency and productivity are increased.

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